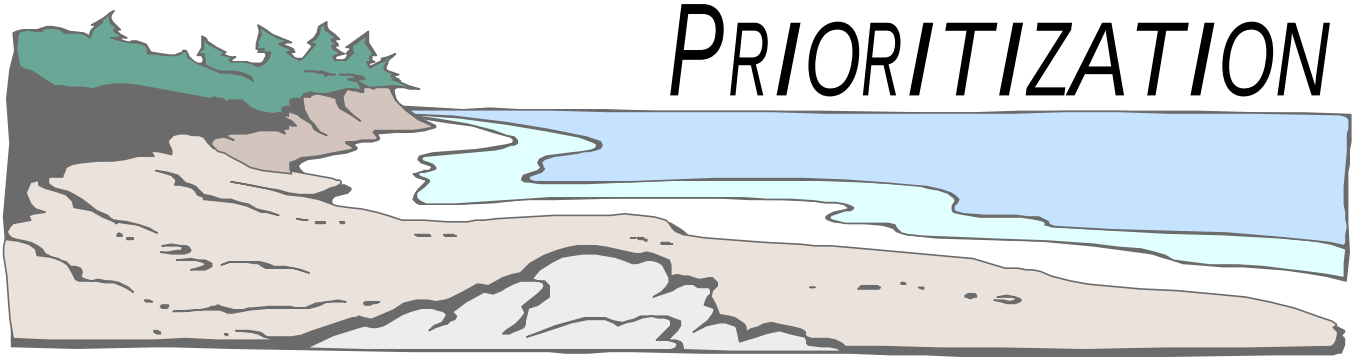
WATERSHED PRIORITIZATION



LONG-TERM GOAL (10-YEAR)

Develop and fully implement a cooperative watershed management program that integrates a comprehensive basin management and targeted sub-basin approach to implementing nonpoint source pollution control

INTRODUCTION

Virginia's evolving watershed management approach includes several programs that implement nonpoint source pollution control efforts on a watershed basis. Nonpoint source pollution (NPS), or polluted runoff, results from many activities across the landscape. Water quality degradation can result when polluted runoff from land use activities such as agriculture, forestry, and construction and development is introduced into surface and groundwater. These impacts can be characterized and addressed within a given watershed by assessing chemical, biological and physical attributes. Therefore, Virginia's pollution control efforts have to be targeted toward addressing sources of pollution on a watershed basis.

There are many other recognized strengths to a watershed management approach to NPS pollution control. NPS pollution, by its nature, lends itself to a watershed approach in that nonpoint sources are generally widespread, and loading patterns to waterways are more readily measured and controlled at the watershed level. In addition, a watershed approach offers opportunities to address a wider range of objectives, provides a framework to solve problems unique to individual watersheds, and addresses statewide water resources issues through a systematic review of all basins within the state. Also, public awareness and involvement in NPS prevention, and the opportunity for state and local cooperation is increased.

The opportunity to improve communication with the public is one of the strongest motivating factors for states to adopt a statewide watershed management approach. By developing information plans and using methods that promote public involvement (e.g., educational meetings, workshops, Adopt-A-Stream, citizen stream monitoring, etc.), watershed management can increase public awareness on water related issues and facilitate responses to citizen concerns. Watershed plans contribute to a more informed public, which can result in more realistic expectations regarding water management. Due to its increased opportunities for participation, a watershed planning approach can lead to increased public support

for state-sponsored management initiatives. Watershed management also yields new opportunities for cooperative partnerships among federal, state and local governments. By providing a common framework for management, each partner can see where it fits in and can focus its resources to complement the overall planning efforts.

Watershed management issues facing Virginia include:

- the need to improve coordination between various state and federal programs
- the need to enhance watershed prioritization efforts
- the need to streamline reporting and assessment programs

As Virginia moves forward with a watershed approach to NPS pollution control, program coordination and the ability to target resources will be key to effective implementation. Strong partnerships and interagency cooperation will be required to affect these changes.

ISSUE IDENTIFICATION & PROGRAM ASSESSMENT

Key federal watershed management initiatives and programs are described below. These programs establish a framework and provide support for state and local watershed management efforts.

Clean Water Act

Comprehensive watershed planning had its inception in the Clean Water Act (CWA). Section 303 (e) of the Clean Water Act, with its provisions for continual program planning, outlines a comprehensive and integrated approach to watershed management. Section 303 (e) requires that states have a continuing planning process for all navigable waters. Among other things, plans are to include effluent limits and incorporation of total maximum daily loads (TMDL) for pollutants, schedules for compliance with effluent limits, provisions for intergovernmental cooperation, and adequate assurance for implementation, including schedules of compliance. Although there are differences across the country in how this section has been implemented, it provides a strong foundation for watershed management. Section 303(d) of the statute requires that states prioritize and develop total maximum daily loads (TMDLs) or other waste load allocations that will assure the attainment of water quality standards, such that designated beneficial uses are attained. Section 319, with its emphasis on NPS pollution program planning, also provides a strong incentive for watershed-based resource management efforts.

Coastal Nonpoint Source Pollution Control Program

In addition to the CWA, Section 6217 of the Coastal Zone Act Reauthorization Amendments support watershed management within Virginia's coastal zone. In particular, federal guidance issued pursuant to this statute requires states, with approved coastal resource management programs, to implement management measures which include watershed prioritization and planning. Guidance issued in October of 1998 requires states with coastal nonpoint source pollution programs to develop 15-year strategies inclusive of five-year implementation plans.

Clean Water Action Plan

The Clean Water Action Plan (CWAP) represents a major new multi-agency federal initiative to target nonpoint source (NPS) pollution control on a watershed basis. The Clean Water Action Plan, announced by President Clinton and Vice President Gore on February 19, 1998, emphasizes collaborative strategies built around watersheds and the communities they sustain. This initiative seeks to build on clean water successes and addresses three major goals:

- enhanced protection from public health threats posed by water pollution
- more effective control of nonpoint source pollution
- promotion of water quality protection on a watershed basis

In addition to encouraging watershed management, this initiative makes available substantial additional funding resources. To be eligible for these funds, states must develop a Unified Watershed Assessment (UWA) document and Watershed Restoration Action Strategies (WRAS). This initiative supports and compliments Virginia's cooperative watershed-based approach to implementing NPS pollution control programs.

Cooperative River Basin Studies

Cooperative River Basin Studies are conducted by the Natural Resource Conservation Service (NRCS) under the authority of Section 6, Public Law 83-566, the Watershed Protection and Flood Prevention Act. Section 6 of PL-566 authorizes NRCS, in cooperation with other federal, state and local agencies, "to make investigations and surveys of the watersheds of rivers and other waterways as a basis for the development of coordinated programs." This wide range of activities provides support to solve resource problems, work cooperatively with state, local and other federal agencies, and develop information and data to support other conservation programs.

State Watershed Initiatives

Several important laws passed in Virginia in recent years lend support to a watershed approach. The Water Quality Improvement Act of 1997 (WQIA; *Code of Virginia* §10.1, Chapter 21.1) "establishes cooperative programs related to nutrient reduction and other point and nonpoint sources of pollution." Virginia's Tributary Strategy Program (*Code of Virginia* §2.1-51.12:1) requires the development of strategies and written plans to restore water quality and living resources of the Chesapeake Bay and its tributaries.

Water Quality Improvement Act

A key provision of the Water Quality Improvement Act is the requirement that state agencies develop and promote cooperative watershed programs. The state has the responsibility under Article XI of the Constitution of Virginia to protect the bays, lakes, rivers, streams, creeks and other state waters of the commonwealth from pollution and impairment. Commercial and residential development of land as well as agricultural and other land uses may cause the impairment of state waters through nonpoint source pollution. In the exercise of their authority to control land use and development, it is the responsibility of counties, cities and towns to consider the protection of all bays, lakes, rivers, streams, creeks, and other state waters from nonpoint source pollution. The exercise of environmental stewardship by individuals is necessary to protect state waters from nonpoint source pollution. To promote cooperative programs, the state is required to assist local governments, soil and water conservation districts and individuals in restoring, protecting and improving water quality through grants provided from the Water Quality Improvement Fund.

Cooperative NPS pollution programs are combinations of programmatic tools, and technical and financial resources of varying emphases used to target water quality impairments in a given watershed and political jurisdiction. A cooperative approach to protecting water quality will help local stakeholders develop their capabilities individually and collectively to address local water quality impairments. The outcomes of cooperative NPS pollution programs will be a combination of existing efforts and new opportunities, which address specific water quality impairments and improvements, as supported by the public and the numerous stakeholders.

Cooperative NPS pollution programs also include educational strategies. Educational strategies are intended to enhance the understanding of NPS pollution and associated voluntary efforts, so that fewer regulatory approaches are needed. Local volunteer watershed or stakeholder organizations can provide additional assistance to complement DCR's existing services.

In addition to local needs, the cooperative NPS pollution programs will be targeted to address stream segments listed as impaired or not meeting water quality standards in accordance with the federal Clean Water Act requirements. DCR has taken many steps to focus its

NPS pollution programs on a watershed basis in order to take advantage of the efficiencies and effectiveness of a more comprehensive, integrated approach to NPS pollution abatement.

In addition to cooperative program development, the Water Quality Improvement Act requires that DCR, in conjunction with other state agencies, evaluate and report, biennially, on the impacts of nonpoint source pollution on water quality and water quality improvement to the governor and the General Assembly. The evaluation shall, at a minimum, include considerations of water quality standards, fishing bans, shellfish contamination, aquatic life monitoring, sediment sampling, fish tissue sampling and human health standards. The report shall, at a minimum, include an assessment of the geographic regions where water quality is demonstrated to be impaired or degraded as the result of nonpoint source pollution and an evaluation of the basis or cause for such impairment or degradation.

Development of Watershed Roundtables

Roundtables will be formed for each river basin to provide watershed-based forums for stakeholders to participate in defining critical watershed needs, targeting problems for solutions, and providing input on potential management options to restore and protect water quality.

In particular watershed roundtables will:

- identify comprehensive watershed goals
- develop and support the implementation of management options and strategic actions
- assist in monitoring the success of the strategic actions
- conduct public outreach to help restore and protect water quality
- support the coordination of efforts conducted by federal, state and local agencies and interest groups to restore and protect water quality

In the Southern Rivers Watershed (river basins located outside the Chesapeake Bay watershed), where the tributary strategies have not been developed, these roundtables will be instrumental in helping to assure effective basin planning.

Tributary Strategy Development and Implementation

Tributary plans prepared by state agencies under the direction and guidance of the office of the Secretary of Natural Resources and pursuant to *Code of Virginia* §2.1-51.12:1 shall include, among other requirements, the following:

- recommended specific strategies, goals, commitments and methods of implementation designed to achieve the nutrient and sediment goals;
- a report on progress made pursuant to the "Chesapeake Bay Basin-wide Toxics Reduction and Prevention Strategy" applicable to the tributary for which the plan is prepared;
- a report on progress on the "Submerged Aquatic Vegetation Restoration Goals" signed by the Chesapeake Executive Council on September 15, 1993, that is applicable to the tributary for which the plan is prepared;
- specifically identified recommended state, local and private responsibilities and actions, with associated timetables, for implementation of the plan; and,
- specifically identified sources of state funding and estimates, and a schedule of costs for the recommended alternatives in each plan.

Tributary strategies have been prepared, or are under development for the Shenandoah-Potomac, the Rappahannock, the York, and the James rivers, and the Eastern Shore. Water quality improvements target increased clarity and dissolved oxygen levels. These

improvements provide a basis for the reestablishment of habitat for underwater grasses, finfish, shellfish and other living resources.

In order to promote valid solutions to the problems identified for each individual basin, tributary strategies incorporate the most current and best available science, monitoring data and computer modeling. To further ensure solutions are realistic, involvement of local decision-makers, interested citizens and interest groups is actively sought. Implementation of tributary strategies is voluntary and eligible for cost-share funding under Virginia's Water Quality Improvement Act.

Staff from DCR, DEQ, the Chesapeake Bay Local Assistance Department (CBLAD) and other natural resource agencies are working with localities and local interests to assess local conditions including ongoing pollution reduction activities. These state and local teams are identifying existing nutrient loads, measuring reduction practices already in place, assessing how much nutrient reduction is practical in the particular region and identifying corrective measures.

Watershed Assessment

The purpose of the watershed assessment program is to provide a comparative evaluation of the state's waters on a watershed basis. This allows for targeted NPS pollution protection opportunities. There are 494 watershed units within 17 major basins.

The assessment ranks inventory data and water quality measures, producing an overall rank from these components.

Inventory data is related to specific land use, animal density and other NPS factors which have been developed in a uniform manner for all watersheds. Water quality measures, where available, are also used to identify watersheds with known water quality problems. This data is divided among agricultural, urban and forestry practices.

Results of the assessment are published in the Commonwealth's 305(b) report, and in a separate NPS Assessment Report.

The Nonpoint Source Watershed Assessment Report summarizes information from DCR, DEQ, Virginia Department of Forestry (DOF), Natural Resources Conservation Service (NRCS), Virginia Cooperative Extension (VCE), local soil and water conservation districts (SWCDs), local governments, and other existing outlets for information concerning nonpoint source impacts to Virginia waters.

Watershed Restoration Action Strategy Development

As previously described, federal guidance issued in 1998 requires states to develop Watershed Restoration Action Strategies (WRAS). In response, Virginia has developed a program that will incorporate a two-tiered approach to development and implementation of Watershed Restoration Action Strategies. This two-tiered approach is consistent with Virginia's UWA prioritization process, which identifies both watershed-level and broader basin-level objectives for FY1999 - FY2000 period. This approach also takes advantage of existing basin planning efforts. With regard to development of WRAS to address the basin-level priorities established under the Shenandoah-Potomac and other Chesapeake Bay Tributary Strategies, Virginia is well ahead of the schedule and process envisioned in the Clean Water Action Plan. Virginia has completed, or is in the final stages of completing, tributary strategies which fulfill the role of Watershed Restoration Action Strategies, for all of Virginia's Chesapeake Bay tributaries.

Virginia has developed a detailed nutrient reduction strategy for the Shenandoah and Potomac river basins and has committed to implementing this strategy by the year 2000 to meet nutrient reduction goals established by the Chesapeake Bay Agreement. An unprecedented level of resources has been committed to meeting the nutrient reduction goals established in the strategy and substantial progress has been made toward strategy implementation. This restoration priority is reflected in the 1998 Unified Watershed Assessment and Restoration Priorities document. The Shenandoah and Potomac river basins are identified as a short-term Unified Watershed Assessment Restoration Priority. Although the Shenandoah and Potomac Tributary Strategy focuses on nutrient reduction, control actions

will also provide fecal coliform and sediment reduction benefits.

Development and implementation of tributary strategies for the Rappahannock, York, and James river basins strategies has also been identified as a watershed restoration priority in the 1998 Unified Watershed Assessment and Restoration Priorities document. Interim strategies have been completed for those tributaries and implementation is already underway. Final strategies for the lower bay tributaries will be completed in 1999**,** and will identify specific activities and objectives for implementation.

Basin-wide Watershed Restoration Action Strategies will be developed for Virginia's Southern Rivers through the Watershed Conservation Round Table process and the Water Quality Management Planning process to be developed in accordance with Section 303 (e) of the

Clean Water Act (CWA). A draft of the Tennessee - Big Sandy Basin has been completed and is currently under review. Work on strategies in other basins will begin as early as 1999. As with the Bay Tributary Strategy process, Watershed Restoration Action Strategy development and implementation in the Southern Rivers will involve extensive stakeholder and local government participation, and will require a substantial commitment of time and resources.

With regard to development of Watershed Restoration Action Strategies to address the smaller-scale, watershed-level priorities identified in the UWA, Virginia will use a combination of existing watershed implementation plans, and soon-to-be-developed TMDL implementation plans. These plans will be developed at the appropriate watershed scale to address watershed-level impairments or threats which contributed to the inclusion of eight-digit Hydrologic Unit Catalog (HUC) watersheds on Virginia's high-priority list for the 1998 UWA.

In many cases, significant NPS abatement activities have already been initiated in Virginia's high priority watersheds and project-level or watershed-level implementation plans have already been developed. For example, watershed projects funded by CWA Section 319 are required to have implementation plans, as described in EPA's May, 1996 *NPS Program and Grants Guidance for FY1997 and Future Years*. We believe that these implementation plans constitute WRAS.

In other cases, Virginia anticipates the near-term development of TMDL implementation plans. Virginia has established a two-year schedule for development of TMDLs for several high-priority watersheds. In addition, Virginia's Water Quality Monitoring, Information, and Restoration Act requires implementation of TMDL plans once EPA has approved (finalized) them. Virginia will work with local governments, soil and water conservation districts, planning district commissions, and non-governmental organizations to develop implementation plans for each TMDL.

Virginia's UWA reflects both basin-level and smaller watershed-level priorities. A multi-level approach to WRAS development and implementation is needed to effectively address nonpoint source water quality and resource protection issues. In developing watershed

strategies, Virginia will seek opportunities to closely coordinate basin and watershed-level strategies by identifying and tracking implementation efforts that help meet watershed and basin-wide water quality goals.

Virginia's basin-wide WRAS and Chesapeake Bay Tributary Strategies, in combination with existing watershed implementation plans and proposed TMDL implementation plans, incorporate all elements of a Watershed Restoration Action Strategy. *The Shenandoah and Potomac River Basins Tributary Nutrient Reduction Strategy* addresses all of the elements specified in federal guidance issued in December of 1998. The strategy was developed in cooperation with federal, state, and local agencies, as well as watershed-based organizations and the public. While the target of the strategy is restoration of the Chesapeake Bay and the Potomac River estuary, the actions implemented through the strategy will have significant local water quality benefits as well.

303(d) Total Maximum Daily Load Priority List

Section 303(d) of the Clean Water Act and EPA's Water Quality Planning and Management regulations (40

CFR Part 103) require states to develop Total Maximum Daily Loads (TMDLs) for waterbodies that are not meeting designated uses under technology-based controls. The TMDL process establishes the allowable loadings of pollutants or other quantifiable parameters for a water body based on the relationship between pollution sources and in-stream water quality conditions. By following the TMDL process, states can establish water-quality based controls to reduce pollution from both point and nonpoint sources, and restore and maintain the quality of their water resources (USEPA 1991a).

Section 303 (e) Continuing Planning Process (CPP)

The Continuing Planning Process is a requirement of section 303(e) of the Clean Water Act and Section 130.5 of 40 CFR. It is a document which explains the state's process for implementing federal/ state laws and regulations on water quality. The CPP describes the process for developing and updating the content, uses or purpose, implementation requirements, agencies involved, and public participation requirements of the state's water quality management programs.

Following is a list of water quality programs addressed in the CPP:

- VPDES & VPA Permit Program
- Construction Assistance Grants Program
- 303(d) TMDL Priority List and TMDL Development
- 303(e) Water Quality Management Plans including Citizens Monitoring
- 305(b) Water Quality Report
- 319 NPS Program
- State's Water Quality Monitoring Plan
- CWAP and Watershed Restoration Action Strategies
- CZARA
- Mining Reclamation
- Chesapeake Bay Tributary Nutrient Reduction Strategies
- WQIA
- Water Quality Monitoring Information and Restoration Act

Virginia's updated CPP will be submitted to EPA by November 1, 1999.

Natural Areas Management Program

DCR's Division of Natural Heritage initiated the Karst Groundwater Protection Program (1994) in order to document, preserve, and restore the groundwater habitats of sensitive species. The project is implemented by the Natural Areas Management Program and shared with the Nonpoint Source Management Program; an arrangement that highlights the integral connection between the preservation of natural heritage resources and the quality of the state's waters and drinking water supplies. Program staff focus on local and regional threats to water quality in the western Virginia karst region, and work in close cooperation with Soil & Water Conservation Districts, planning district commissions, the Source Water Assessment Program (Va Dept. of Health), the US Geological Survey, and the state's Natural Area Preserves System. Karst groundwater protection is promoted through a combination of technical assistance, data collection (monitoring, mapping, and tracer testing), and public outreach, which includes brochures, materials, and educational efforts coordinated through Project Underground and Project WET. With regard to groundwater issues, the program facilitates coordination between the diverse group of agencies and institutions affecting nonpoint source management in each basin.

Analysis of Existing Programs

The programs described previously demonstrate that the commonwealth has the institutional framework in place to address nonpoint source pollution control on a watershed basis. However, there remain opportunities to improve program and agency coordination. In particular, the links between various basin-level planning initiatives and programs need to be clarified. Also, a mechanism is needed to enhance targeting and prioritization of watershed restoration efforts and there is a need to streamline reporting and assessment

programs. There may be opportunities to consider state and federal programs that address drinking water protection in determining watershed priorities.

There appears to be a 'disconnect' among the various statutes and program requirements related to basin level planning and management activities. For example, the cooperative river basin studies developed by the Natural Resources Conservation Service, the Continuous Planning Process required by Section 303(E) of the Clean Water Act and the Cooperative Watershed Initiative set forth in the Water Quality Improvement Act were established by separate federal and state statutes or regulations. Because these statutes fail to recognize each others' respective legislative requirements, there is a lack of coordination and recognition among these programs.

Similarly, there are various statutory and regulatory assessment and reporting requirements for each program. Specifically, Section 305(b) of the CWA requires a water quality assessment report, Section 319 of the CWA requires a NPS assessment report, Section 303(d) requires a priority list of impaired streams, and the WQIA requires a NPS assessment report. While there are some similarities between the reporting requirements for these programs, the schedules are often different. As a result, the reports often contain duplicate information or create conflicts for managing staff resources and program priorities.

Another watershed management related issue identified through the work group process is the need to better target and prioritize implementation efforts. In particular, the need to establish TMDL priorities was identified in several work groups. Issues were also raised regarding how to accomplish better watershed prioritization and the need for better technical data. Finally, the concern was expressed that the state should not focus all its attention on impaired streams. Rather, it was felt that Virginia needs to provide technical and financial assistance to avoid degradation of streams that currently meet water quality standards. This allows for the long-term maintenance and sustainability of water quality in the commonwealth.

OBJECTIVES (SHORT-TERM GOALS)

The following objectives have been created for watershed prioritization. Strategies and actions necessary to accomplish these short-term goals will be listed in the tables that follow. (For additional strategies, objectives, and tasks regarding implementation of watershed management measures in the coastal zone refer to Chapter XIII Coastal Nonpoint Source Pollution Control Program.)

Objective 1. By 2004, establish well integrated and coordinated basin planning and management programs that minimize program overlap and leverage program resources to address contaminants that may pose risks to either the environment or public health

Objective 2. By 2005, establish well integrated and coordinated assessment and reporting programs that minimize program overlap and duplication

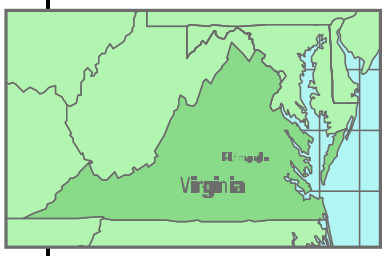
Objective 3. By 2003, the Department of Environmental Quality and the Department of Conservation and Recreation will develop the protocols and data needed to prioritize total maximum daily load TMDL development based on severity of impact

TABLES OF OBJECTIVES & STRATEGIES

OBJECTIVE 1				
By 2004, establish well integrated and coordinated basin planning and management programs that minimize program overlap and leverage program resources to address contaminants that may pose risks to either the environment or public health				
STRATEGIES	**RELATED TASKS**	**AGENCIES & OTHERS**	**TARGET YEAR**	**FUNDING SOURCES**
1.1 Form a subcommittee to the Nonpoint Source Advisory Committee (NPSAC) to identify areas of basin planning and management duplication and overlap and develop recommendations for agency heads	Identify all parties involved with basin level planning and management activities Identify opportunities to improve coordination among tributary strategy development, Cooperative River Basin studies, Continuous Planning Process, and the Cooperative Watershed Initiative	•NPSAC agencies	2003	•General Fund
1.2 Establish roundtables for major state river basins	Develop basin specific strategic action plans	•DCR •Local Govt. •SWCDs •NPSAC Agencies •others	2001-2002	•General Fund

OBJECTIVE 2				
By 2005, establish well integrated and coordinated assessment and reporting programs that minimize program overlap and duplication				
STRATEGIES	**RELATED TASKS**	**AGENCIES & OTHERS**	**TARGET YEAR**	**FUNDING SOURCES**
2.1 Use a subcommittee to the Nonpoint Source Advisory Committee to identify areas of duplication and overlap in reporting and assessment requirements, and opportunities to combine nonpoint source water quality assessment and reporting programs	Determine if legislative changes are needed to establish compatible reporting schedules	•DCR & other NPSAC Agencies	2003	•General Fund
2.2 Subcommittee develops and submits to agency heads recommendations for streamlining assessment and reporting requirements		•NPSAC Agencies	2004	•General Fund

OBJECTIVE 3				
By 2003, the Department of Environmental Quality and the Department of Conservation and Recreation will develop the protocols and data needed to prioritize total maximum daily load TMDL development based on severity of impact				
STRATEGIES	**RELATED TASKS**	**AGENCIES & OTHERS**	**TARGET YEAR**	**FUNDING SOURCES**

3.1 DEQ and DCR will reactivate the total maximum daily load work group that will meet quarterly, or as often as necessary, to identify research needs and develop needed protocols, such as waters with shellfish or benthic impairments	Negotiate priorities and schedules with the Environmental Protection Agency 	•DEQ •DCR	Meet quarterly or as often as needed	•General Fund
	Provide a forum for public input into developing watershed priorities			
	Identify opportunities for using grant set-asides for research and protocol development (Section 604(B) and Section 319)		2002	

Work Group Members & Agency/Organization Represented

Watershed Prioritization

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